

TAR SPOT OF MAPLE

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Maple, Acer L., contains over 100 species widely distributed in North America, Central and East Asia, Europe, and Africa (2). The maples are among the most hardy ornamental trees valued for park, home, and street plantings. Nearly all assume a splendid array of color in the autumn. Many species are valuable timber trees and still others produce sugar (1). Red maples, Acer rubrum L., grow in all parts of the United States and southern Canada and tolerate almost any kind of soil (5).

Tar spot of maple is caused by *Rhytisma acerinum* (Pers.) Fr., a fungus that has been recognized for a little over 100 years. Early investigators of this foliage disease referred to it as 'wrinkled scab' or 'Runzelschorfe' (8). Its imperfect (conidial) stage is *Melasmia acerina* Lev. (7,8,11,14). This stage does not appear to play an active role in causing infection, for the conidia seem to function as spermatogonia or spermatia in the development of the perfect (apothecial) stage which produces ascospores that serve as the primary source of inoculum (8).

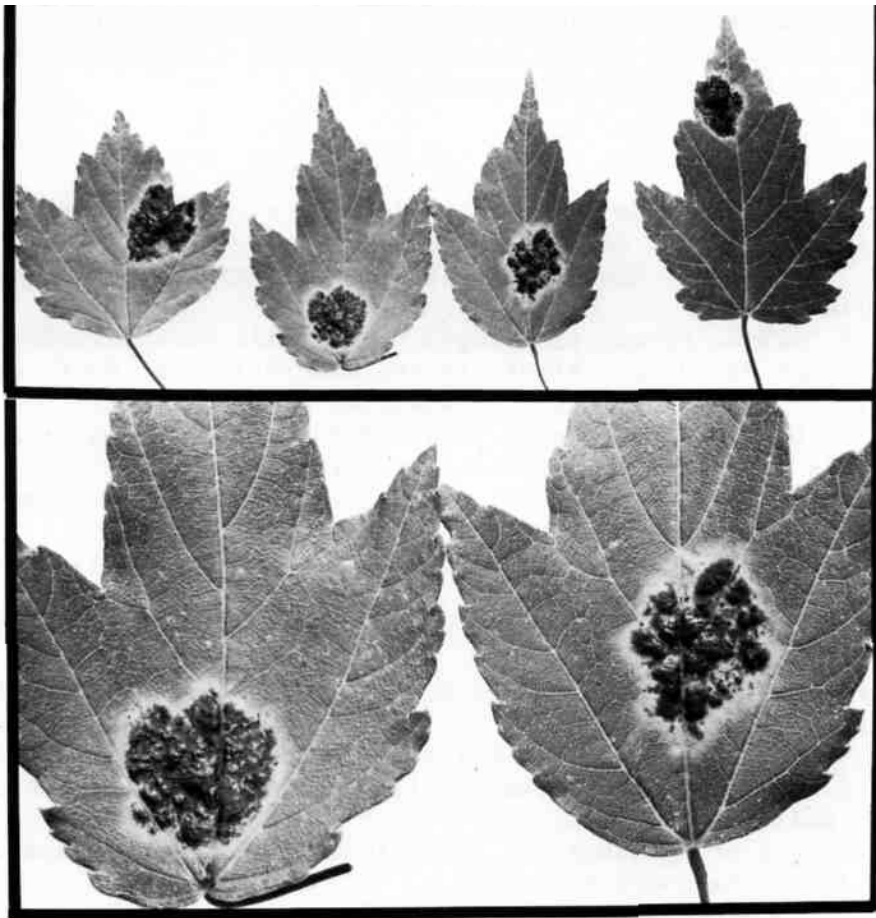


Fig. 1. Tar spot of red maple, *Acer rubrum* L., caused by *Rhytisma acerinum* (Pers.) Fr.

Tar spot occurs on the following hosts: *Acer campestre* L., hedge maple (7); *A. douglasii* Hook., Douglas maple (12); *A. platanoides* L., Norway maple (6,8); *A. rubrum* L., red maple (3,9,10,12,13); *A. saccharinum* L., silver maple (12,13); *A. saccharum* Marsh.(=*A. saccharophorum* K.Koch.), sugar maple (12); and *A. spicatum* Lam., mountain maple (12).

**SYMPTOMS.** Tar spot is characterized on the upper leaf surface by a black, tar-like, raised, thickened, roughened leaf spot with a prominent yellow margin, enlarging up to 15 mm (slightly more than one-half inch) in diameter. The spots rarely coalesce (fig. 1). Lesions are light yellow-green at first, initiated in the early spring, followed by the characteristic tar-like spot which is actually the compact fungus mass (stroma) produced in the summer. These spots are brown on the lower surface of the leaves (4,6,8,14). Following infection defoliation occurs, and the fungus overwinters in the fallen leaves on the ground. In the following spring under alternating conditions of wetting and drying, ascospores are forcibly ejected from these fallen leaves for a distance of up to 1 mm, whereupon they are caught up by air currents and carried onto the new spring foliage, thus initiating the disease cycle anew (3,8). Trees in more sheltered locations are more heavily infected where tar spot-infected leaves collect on the leeward side of a hedge or where there is a thick carpet of leaf mold (8).

**CONTROL.** The most efficacious control measures are 1) the gathering and burying or burning of fallen leaves in the fall so that no new infections occur to the spring foliage from tar spot-laden leaves of the previous year (4,6,14), and 2) the spraying of new foliage in the early spring with a copper fungicide, repeating in 3 weeks in an unusually wet season (14).

#### References Cited

1. Bailey, L. H. 1942. The standard cyclopedia of horticulture. Vol. 1, A-E. The Macmillan Co., New York. 1200 p.
2. Bailey, L. H. 1954. Manual of cultivated plants. The Macmillan Co., New York. 1116 p.
3. Boyce, J. S. 1948. Forest pathology. McGraw-Hill Book Co., New York. 550 p.
4. Bureau of Plant Pathology (Plant Disease Records). Fla. Dept. Agric. and Consumer Serv., Div. Plant Ind., Gainesville. (Unpublished)
5. Crockett, J. U. 1972. Trees. Pages 90-95 in Ogden Tanner, Ed., Time-Life encyclopedia of gardening. Time-Life Books, New York.
6. Gram, E., and Anna Weber. 1953. Plant diseases in orchard, nursery and garden crops. Philosophical Library, New York. 618 p.
7. Grove, W. B. 1937. British stem- and leaf-fungi. Vol. II. Cambridge Univ. Press, London. 407 p.
8. Jones, S. G. 1925. Life-history and cytology of *Rhytisma acerinum* (Pers.) Fries. Ann. Bot. 39:41-75.
9. Korf, R. P., M. A. Rosinski, and C.D. Chupp. 1954. Notes and brief articles. Mycologia 46:110-123.
10. Miller, J. H. 1949. Notes and brief articles. Mycologia 41:207-222.
11. Schwarze, C. A. 1917. The parasitic fungi of New Jersey. New Jersey Agric. Exp. Sta. Bull. 313. 226 p.
12. U. S. Department of Agriculture. 1965. Index of plant diseases in the United States. Agric. Handbook 165. 531 p.
13. Wehlburg, C., S. A. Alfieri, Jr., K. R. Langdon, and J. W. Kimbrough. 1975. Index of plant diseases in Florida. Fla. Dept. Agric. and Consumer Serv., Div. Plant Ind. Bull. 11. 285 p.
14. Westcott, C. 1971. Plant disease handbook. Van Nostrand Reinhold Co., New York. 843 p.